The Service requests that land be set aside for development projects so that the projects conform with the Recovery Plan for Upland Species of the San Joaquin Valley, California (Valley Recovery Plan)(Service 1998*a*). Recovery Tasks 2.1.8 and 2.1.15 from the Valley Recovery Plan calls for preservation of public and private land in Western Fresno (Kreyenhagen Hills) and Merced Counties.

Based on the March 12, April 30, and May 29, 2003 habitat loss computations (WAPA 2003*c*), the Service finds that temporary and permanent impacts from the project will require 574.78 acres of compensation land. WAPA has agreed to provide funds to Wildlands, Inc. to buy high quality habitat, that supports the same species found along the Path 15 project site. Half of the compensation acreage will be purchased at the Coalinga Conservation Preserve, a Wildlands, Inc. property located in the Kreyenhagen Hills approximately six miles southwest of Coalinga. The remaining half of the compensation lands will be purchased by Wildlands, Inc. near the northern end of the project area in Merced County. Some appropriate parcels have been identified in this area. A summary of the acres impacted and the compensation to be provided is shown on Table 1.

Status of the Species

The entire ranges of the species being addressed in this opinion are described, as they were known historically, and as they occur today. The major threats to the species are noted. The reader is directed to the Valley Recovery Plan (Service 1998*a*) for further information on taxonomy, ecology, and biology of most species described here. Federally threatened and endangered animals are addressed first, with species accounts for listed plants presented second.

Table 1. Habitat Impact and Compensation Acreage Necessary for Path 15 Transmission Line Project, Fresno and Merced Counties, California.

Active Agricultural Cropland	Ratio	Impacted Acreage	Compensation Acreage
-Permanent Impact	1.1:1	9.83	10.81
-Temporary Impact	0.5:1	33.05	16.53
Upland Scrub/Alkali Sink Habitats			
-Perm. Impact to Conserved Lands	4:1	0.19	0.76
-Perm. Impact to Non-Conserved Lands	3:1	4.39	13.17
-Temp. Impact to Conserved Lands	2.1:1	0.65	1.37
-Temp. Impact to Non-Conserved Lands	1.1:1	0.00	0.00
Upland Grassland Habitat			
-Perm. Impact to Conserved Lands	2.1:1	4.91	10.31
-Perm. Impact to Non-Conserved Lands	1.1:1	280.40	308.44
-Temp. Impact to Conserved Lands	1.5:1	9.02	13.53
-Temp. Impact to Non-Conserved Lands	0.5:1	399.71	199.86
Total Permanent Impact Acreage		**299.72**	
Total Temporary Impact Acreage		**442.43**	
Total Compensation Acreage Required			**574.78**

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Listing and Recovery. The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 **FR** 4001) and listed by the State as threatened on June 27, 1971. Recovery of the San Joaquin kit fox is addressed in the Valley Recovery Plan issued by the Service in 1998. This species account is a brief summary. The recovery plan calls for protecting the Carrizo Plain Natural Area (CPNA), western Kern County, and the Ciervo-Panoche Natural Area as core populations while reducing their isolation by managing populations on connecting private and public lands through conservation agreements. The natural lands of western Fresno County, including the Ciervo and Panoche Hills, and adjacent natural lands inhabited by San Joaquin kit foxes are essential for San Joaquin kit fox recovery.

Distribution. The San Joaquin kit fox historically was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. The current range of the San Joaquin kit fox is divided into two areas, the northern range centering around eastern Contra Costa County and Alameda County, and the southern range in the San Joaquin Valley and neighboring valleys. They also occur in

interior coastal ranges and watersheds from Monterey County to Ventura County. San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the CPNA in San Luis Obispo County. In the southern San Joaquin Valley, San Joaquin kit foxes also appear to make extensive use of habitat fragments in an urbanizing environment (Service 1998*a*), particularly in the Bakersfield area.

Reasons for Decline. Intensive agriculture, urbanization, and other land-modifying actions have eliminated extensive portions of habitat and are the most significant causes of this species endangerment. Such habitat losses contribute to San Joaquin kit fox declines through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations. The coyote and the introduced red fox compete for food resources with the smaller San Joaquin kit fox, and are known to prey upon San Joaquin kit fox as well (U.S. Department of Energy and Chevron 1998). Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the vulnerability of this species.

Giant Kangaroo Rat (*Dipodomys ingens*)

Listing and Recovery. The giant kangaroo rat was federally listed as endangered on January 5, 1987 (52 **FR** 283) and listed by the State as endangered on October 2, 1980. Recovery of the giant kangaroo rat is addressed in the Valley Recovery Plan issued by the Service in 1998. This species account is a brief summary.

Distribution. The giant kangaroo rat was distributed historically from southern Merced County, south through the San Joaquin Valley, to southwestern Kern County and northern Santa Barbara County. Significant populations survive only in a few areas of remaining habitat, including the Panoche Hills, Cuyama Valley, Carrizo and Elkhorn Plains, and the Lokern area. The species' preferred habitat is native annual grasslands with sparse vegetation, good drainage, fine loamy soil, and slope of less than 10 percent.

Reasons for Decline. Completion of the San Luis Unit of the Central Valley Project and the California Aqueduct of the State Water Project resulted in rapid cultivation and irrigation of natural communities that had provided habitat for giant kangaroo rats along the west side of the San Joaquin Valley (Williams 1992, Williams and Germano 1993). Between about 1970 and 1979, almost all the natural communities on the western floor and gentle western slopes of the Tulare Basin were developed for irrigated agriculture, restricting occurrence of most species of the San Joaquin saltbush and Valley Grassland communities, including the giant kangaroo rat. This rapid habitat loss was the main reason for its listing as endangered.

Habitat destruction resulting from the development of small cities and towns along the western edge of the San Joaquin Valley between Coalinga and Maricopa, as well as development of the infrastructures for petroleum and mineral exploration and extraction, roads and highways, energy

and communications infrastructures, and agriculturally related industrial developments collectively have contributed to the endangerment of the giant kangaroo rat. Widespread use of rodenticides and rodenticide-treated grain to control ground squirrels and kangaroo rats may also have contributed to the decline of giant kangaroo rats in some areas.

Bald Eagle (*Haliaeetus leucocephalus*)

Listing and Recovery. The bald eagle was first listed as endangered in 1967, under the Endangered Species Preservation Act of 1966. On February 14, 1978, the bald eagle was designated under the Endangered Species Act of 1973, as amended, as endangered throughout the lower 48 states except in Michigan, Minnesota, Wisconsin, Washington, and Oregon, where it was designated as threatened (43 **FR** 6230). A recovery plan was released in 1986 for the recovery and maintenance of bald eagle populations in the 7-state Pacific recovery region (Idaho, Nevada, California, Oregon, Washington, Montana, and Wyoming) (Service 1986). In recent years, the status of bald eagle populations has improved throughout the United States. It was downlisted from endangered to threatened on July 12, 1995, throughout the lower 48 states (60 **FR** 36000). A proposed rule to remove the species from the list of endangered and threatened wildlife was made on July 6, 1999 (64 **FR** 36454) but this rule has not been finalized.

Critical habitat has not been designated for this species. In addition to the Act, the bald eagle is protected under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§703-712) and the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§668-668d). The bald eagle is listed as endangered under the California Endangered Species Act and designated as a fully protected species under the California Fish and Game Code (§3511).

Distribution. The bald eagle was historically abundant throughout North America except extreme northern Alaska and Canada and central and southern Mexico (60 **FR** 36000). In California, bald eagles breed almost exclusively within Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties. This species formerly nested along the Big Sur coast, and into the 1950s at a few scattered locations from San Luis Obispo County south to San Diego County. They also formerly nested on all the Channel Islands.

Wintering habitat is associated with open bodies of water, with some of the largest wintering bald eagle populations occurring in the Klamath Basin (Detrich 1986). Smaller concentrations of wintering birds are found at most of the larger lakes and man-made reservoirs in the mountainous interior of the north half of the state and at scattered reservoirs in central and southwestern California. California's breeding population is resident year-long in most areas as the climate is relatively mild (Jurek 1988). Between mid-October and December, migratory bald eagles arrive in California from areas north and northeast of the state. The wintering populations remain in California through March or early April.

Reasons for decline. After World War II, the use of dichlorodiphenyltrichloroethane (DDT) and other organochlorine compounds became widespread, and bald eagle populations plummeted. The bald eagle population has increased in number and expanded in range as a result of the

banning of pesticides, habitat protection, and other recovery efforts. Between 1974 and 1995, the number of occupied breeding areas in the lower 48 states increased by 462 percent. Due primarily to eggshell thinning effects of DDT, the breeding population in California was reduced from thousands to about 20 breeding pairs, located in remote mountainous area in the far northern portion of the State (Small 1994). The species has been doubling its breeding population every six to seven years since the late 1970s (60 **FR** 36000).

As a result of recovery efforts including captive breeding and relocation, the California breeding population has increased. By 1994, the California breeding population was estimated at 70 breeding pairs, at scattered areas in north-central California, northeastern California, and the Sierra foothills (Small 1994). The California bald eagle nesting population has increased in recent years from fewer than 30 occupied territories in 1977 to 151 occupied territories in 1999 (Jurek, 2000). Wintering activity occurs throughout the state except for the desert regions east of the Los Angeles Basin (Gertsch *et. al* 1994).

California Condor (*Gymnogyps californianus*)

Listing and Recovery. The California condor was federally listed as endangered on March 11, 1967 (32 **FR** 4001), and State listed as endangered on June 27, 1971. Critical habitat was designated on September 24, 1976 (41 **FR** 187), in Tulare, Kern, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties. The *Condor Recovery Plan* (Service 1996) was revised in 1996. The California condor is a fully protected species under the California Fish and Game Code (§3511). To assist in the recovery of condors, a captive breeding program was established in 1981 to provide captive-reared condors to release to the wild. The Service began reintroducing California condors to the wild in 1992, and as of March 19, 2003, 45 birds in California and 33 birds in Arizona are being closely monitored in the wild. Because of deaths from contact with power lines, condors started undergoing power line aversion training in 1995 before their release.

Distribution. During the Pleistocene era (10,000 to 100,000 years ago) the California condor ranged from British Columbia, Canada to Baja California, Mexico and through the southwest to Florida and north to New York State. With the extinction of the large Pleistocene Era mammals, condors declined in range and numbers. Another large decline occurred when European settlers arrived on the West Coast, and accelerated during the gold rush of 1849. Condors were wantonly shot and poisoned, and eggs and adults were collected. By 1940, the condors' range was reduced to a horseshoe-shaped area in southern California that included the coastal mountain ranges of San Luis Obispo, Santa Barbara and Ventura Counties; a portion of the Transverse Range in Kern and Los Angeles Counties; and the southern Sierra in Tulare County. The last wild condor was captured in 1987; young birds raised in captivity have been reintroduced into the wild in western Monterey County, eastern San Luis Obispo County, and eastern Santa Barbara County in California, and near the Grand Canyon in Arizona. A release is scheduled for late 2003 at Pinnacles National Monument, San Benito County, California (National Park Service, 2003).

Habitat Requirements and Reasons for Decline. The principal foraging regions used by condors since the late 1970s have been the foothills bordering the southern San Joaquin Valley and axillary valleys in San Luis Obispo, Santa Barbara, Kern, and Tulare Counties. Typically, foraging sites are in grasslands or oak-savannah regions at lower elevations, and roosting and nesting sites are located at higher elevations on cliffs. The important foraging areas are primarily private grazing lands.

The California condor declined over the past century to such a low level that only 21 individuals existed in 1982. Reasons for decline include human persecution, egg collecting, pesticides, lead poisoning, habitat loss, and the decline of its prey base of large and medium-size native mammals due to encroachments of agriculture and urbanization. Since reintroduction, there have been nine condors confirmed to have died from colliding with power lines and/or poles, and one additional mortality that is suspected to have been caused by a powerline collision (B. Palmer, pers. communication).

Blunt-nosed Leopard Lizard (*Gambelia sila*)

Listing and Recovery. The blunt-nosed leopard lizard was federally listed as endangered on March 11, 1967 (32 **FR** 4001) and listed by the State as endangered on June 27, 1971. A recovery plan for the blunt-nosed leopard lizard was first prepared in 1980, revised in 1985, and then superceded by the multi-species Valley Recovery Plan (Service 1998a). This species account is a brief summary. The recovery strategy requires that the Service (1) determine appropriate habitat management and compatible land uses for the blunt-nosed leopard lizard; (2) protect additional habitat for them in key portions of their range; and (3) gather additional data on population responses to environmental variation at representative sites in their existing geographic range (Service 1998*a*). The blunt-nosed leopard lizard is listed as endangered under the California Endangered Species Act and designated as a California fully protected species under the California Fish and Game Code (§5050).

Distribution. The blunt-nosed leopard lizard was distributed historically throughout the San Joaquin Valley and adjacent interior foothills and plains, extending from central Stanislaus County south to extreme northeastern Santa Barbara County. Today its distribution is limited to scattered parcels of undeveloped land, with the greatest concentrations occurring on the west side of the valley floor and in the foothills of the Transverse Range. The blunt-nosed leopard lizard prefers open, sparsely vegetated areas of low relief and inhabits valley sink scrub, valley saltbush scrub, valley/plain grasslands, and foothill grasslands vegetational communities.

Habitat Requirements and Reasons for Decline. Adult lizards often seek safety in burrows, while immature lizards use rock piles, trash piles, and brush. The lizards use burrows constructed by mammals, such as kangaroo rats, for overwintering and estivation. Adult lizards hibernate during the colder months of winter, and are less active in the hotter months of late summer. Adults are active above ground from about March or April through September. Hatchlings are active until mid-October or November, depending on weather. Lizard habitat has been significantly

reduced, degraded, and fragmented by agricultural development, petroleum and mineral extraction, livestock grazing, pesticide application, and off-road vehicle use.

Hoover's Eriastrum (*Eriastrum hooveri*)

Listing and Recovery. Hoover's eriastrum was federally listed as threatened in July 19, 1990 (55 **FR** 29361). It has not been listed by the State as either threatened or endangered. The multi-species Valley Recovery Plan issued by the Service in 1998 addresses Hoover's eriastrum. This species account is a brief summary.

Distribution. Hoover's eriastrum was historically distributed in the Temblor Range (Kern and San Luis Obispo Counties), Cuyama Valley (San Luis Obispo and Santa Barbara Counties), and discontinuously in the San Joaquin Valley from Fresno County south, excluding the vicinity of Tulare Lake. The present distribution still extends from Bridge Road west of Fresno to near Cuyama in Santa Barbara County (Taylor and Davilla 1986). Several populations are protected at the Nature Conservancy's Paul Paine Preserve and CDFG's Alkali Sink Ecological Reserve. Some protection is afforded to known populations on Federal lands administered by the BLM and U.S. Department of Energy, and within established private conservation banks.

Habitat Requirements and Reasons for Decline. Hoover's eriastrum grows in scrub-grassland habitats with moderate cover of saltbush. It often grows among cryptogamic soil crusts (i.e., mats of moss, lichen, and algae) that reduce competition from annual grasses (Taylor and Davilla 1986). Valley-floor populations of Hoover's eriastrum have been destroyed primarily by farming operations and secondarily by urban development.

San Joaquin Woolly-threads (*Lembertia congdonii*)

Listing and Recovery. San Joaquin woolly-threads was Federally listed as endangered on 19 July 1990 (55 **FR** 29370). It has not been listed by the State as either threatened or endangered. The multi-species Valley Recovery Plan issued by the Service in 1998 addresses San Joaquin woolly-threads. This species account is a brief summary.

Distribution. San Joaquin woolly-threads was historically distributed across the San Joaquin Valley floor, the Cuyama Valley, and the hills west of the San Joaquin Valley. Associated with the valley saltbush scrub, only 12 populations of the San Joaquin woolly-threads remain in the San Joaquin Valley and adjoining foothills from the vicinity of Panoche Pass (San Benito County) southeasterly to Caliente Creek east of Bakersfield (Kern County). Another seven populations occur to the southwest in Cuyama Valley (San Luis Obispo County).

Known populations occur in the Kettleman Hills, Lost Hills, and the Carrizo and Elkhorn Plains. Within western Fresno County, isolated occurrences are known from the Panoche Hills.

Habitat Requirements and Reasons for Decline. The plant is found in drifted sand or clayey, often alkaline soil in areas of annual grassland and saltbush scrub at elevations between 250 to 2500 feet. It is possible that it grows only in years of more than normal rainfall. Habitat loss is the

primary reason for the decline of San Joaquin woolly-threads. Known occurrences have been eliminated due to agricultural, urban, and oilfield development.

Environmental Baseline

This section contains an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species and their habitats addressed in this biological opinion within the action area of the proposed project. The action area of the proposed project is a portion of western Fresno County and southwestern Merced County The effects of the proposed project are addressed in the following section and are not included here.

Federal, State, local, and private actions already affect the species addressed in this opinion within the action area. These actions include gas and oilfield development and pipeline installation, utility upgrades, power plant and transmission line construction, landfill operations, wastewater treatment operations, road construction and widening, sand dredging, agricultural, and residential development. The Valley Recovery Plan discusses numerous Federal, State, and private individual or collaborative community-level conservation efforts. The majority of listed wildlife and plants in the action area have been, and continue to be affected by conversion of habitat to agricultural, industrial, and urban uses. This has eliminated many listed species from the majority of their historic ranges. The remaining natural communities are highly fragmented; many are marginal habitats in which some listed species may not persist during catastrophic events such as drought or floods (Service 1998a).

This region today is a landscape dominated by human activities including farming, oil and mineral exploration and extraction, urban development, pesticide applications, off-road vehicle use, and construction of transportation, communications, and irrigation infrastructures. For example, less than 150,000 acres on the Valley floor remains uncultivated, and most of the remaining undeveloped land is in the foothills in the Valley perimeter. Significant portions of the land not cultivated or urbanized have been developed for petroleum extraction, strip-mined for gypsum and clay, or occupied by roads, canals, airstrips, oil-storage facilities, pipelines, and evaporation and percolation basins. In addition, natural communities have been permanently altered by the introduction and proliferation of non-native plants, which now dominate many remaining natural habitats (Service 1998*a*).

These human activities can be linked to subsidized imported water and population growth in the San Joaquin Valley. Completion of the San Luis Unit of the Central Valley Project and the California Aqueduct of the State Water Project resulted in rapid cultivation and irrigation of wild lands along the west side of the San Joaquin Valley (Service 1998*a*). The population of Fresno County is expected to more than double between 1990 and 2025, from 686,000 people to 1,301,240 people (Fresno County 2000). The population of Merced County is also expected to more than double between 1990-2025 from 180,200 people to 373, 170 people (City of Merced, 2002). This population will occupy additional acreage for residential, commercial and industrial uses. Consequently, the pressure to develop remaining wild land parcels will grow.

San Joaquin Kit Fox

Loss and degradation of habitat by agricultural, industrial, and urban developments and associated practices continue to affect San Joaquin kit foxes. Loss of habitat contributes to San Joaquin kit fox declines through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey. The isolation of remaining habitat fragments coupled with habitat degradation and barriers to movement, such as aqueducts and busy highways, limits dispersal and threaten survival of San Joaquin kit fox populations (Service 1998*a*).

Natural lands along the edges and within the San Joaquin Valley are considered suitable habitat for San Joaquin kit foxes. Populations of the San Joaquin kit fox occur in the project area and surrounding lands. These populations are located in western Fresno and Merced County in and around the Ciervo-Panoche Natural Area and San Luis Reservoir. The western Fresno County population (which occupies the Ciervo-Panoche Natural Area, and adjacent natural lands) is one of the three core populations identified as essential for recovery of the San Joaquin kit fox (Service 1998*a*).

San Joaquin kit fox population trends in western Fresno and Merced Counties in recent years are downward as they are throughout the species' range (Asserson and Williams, personal communication 1999). Population monitoring of San Joaquin kit fox at the former Naval Petroleum Reserve on the west side of Kern County indicated a general downward trend in foxes captured from 1981 to 1996. EG&G Energy Measurements Group, which was under contract to the U.S. Department of Energy, captured more than 50 individual foxes per year in 1981, 1982, and 1994. Thirty-three foxes were captured in 1995, and 24 foxes were captured in 1996. Reasons for the decline are not fully understood and are probably complex. The decrease in fox captures from 1995 to 1996 may be caused in part by a decrease in the abundance of kangaroo rats, other rodents, and lagomorph prey species, possibly depressing overall reproductive success and survival (Otten and Cypher 1997).

The California Energy Commission conducted studies of the San Joaquin kit fox in undeveloped and oil-developed areas in western Kern County during 1989-1993 (Spiegel 1996). The undeveloped and moderately developed research areas for that study were located along State Route 58. The western Kern County kit fox population declined in part because of a reduction in prey populations induced by drought during the study period (Spiegel and Tom 1996).

CDFG biologists regularly conduct nighttime spotlight surveys for kit foxes along a route that includes portions of State Route 58. The biologists frequently observe kit foxes along this route. Survey results from the route indicate a decline in kit fox numbers over the last several years. In other areas of Kern and San Luis Obispo Counties, occurrences of San Joaquin kit fox are more fragmented. Some San Joaquin kit foxes have managed to find foraging and denning habitat within the City of Bakersfield, especially along canals and in city detention basins.

All of the proposed Path 15 transmission line corridor contains abundant suitable habitat for San Joaquin kit foxes. Kit foxes or their sign were not observed along the transmission line corridor

during surveys conducted in 2001 and 2002. Potential kit fox dens were located within the project area during these surveys. During surveys conducted in 2003, one potential natal den complex, and seven potential typical dens were located in the survey area (Jones & Stokes 2003*b*).

The BLM has designated approximately 32,000 acres of habitat in the Ciervo-Panoche Natural Area in western Fresno County that is dedicated to the long-term conservation and recovery of San Joaquin Valley listed plants and animals, primarily the San Joaquin kit fox and the blunt-nosed leopard lizard. This dedicated area is located directly to the west of the proposed transmission line corridor.

Giant Kangaroo Rat

The decline of giant kangaroo rats is attributed primarily to habitat loss from the conversion of native scrub and grasslands to agriculture (Service 1998*a*). An estimated 1.8 percent of the giant kangaroo rat's historical habitat remains (Williams 1992). Populations within remaining habitat fluctuate widely in response to changing weather patterns (Williams 1992, Service 1998*a*). Since listing as endangered, conversion of habitat for giant kangaroo rats has slowed substantially, because most tillable land has already been brought into cultivation, and because of a lack of water for additional irrigated acres. However, during and following the 1994-1995 winter, biologists noted a decline in abundance of kangaroo rats in the southern San Joaquin Valley. Decreased sign of activity and lower than expected trapping results were observed at several dispersed sites. Dramatic declines were noted for short-nosed, Tipton, and Heermann's kangaroo rats, although only modest reductions were noted for giant kangaroo rat populations on the valley floor (Single et al. 1996).

Urban and industrial developments, petroleum and mineral exploration and extraction, new energy and water conveyance facilities, and construction of communication and transportation infrastructures continue to destroy habitat for giant kangaroo rats and increase the threats to the species by reducing and further fragmenting populations. Rodent control programs have also contributed to the species' decline. Habitat degradation due to lack of appropriate habitat management on conservation lands, especially lack of grazing or fire to control density of vegetation (including shrubs) may be an additional threat to giant kangaroo rats (Williams and Germano 1993). Though many recent and future habitat losses will be mitigated for by protecting habitat elsewhere, they still result in additional loss and fragmentation of habitat.

One of the six major population areas of the giant kangaroo rat is located near the Path 15 project area. The population that occurs in western Fresno County in the Panoche area is just to the west of the proposed transmission line. The western Fresno County populations of the giant kangaroo rat includes colonies along the eastern base of Monocline Ridge and the Tumey Hills, very near the proposed transmission line (Service 1998*a*).

Possible giant kangaroo rat sign was observed within the project area during 2001, and suitable habitat of varying quality occurs along much of the proposed transmission line route in annual grassland. Many areas appear to be too heavily vegetated or too steep for preferred giant

kangaroo habitat. No evidence of giant kangaroo rats was observed along the project route during the 2002 or 2003 surveys. NDDB contains several records of giant kangaroo rats in the project area.

Bald Eagle

Today the bald eagle continues to be found throughout much of North America and breeds or winters throughout California, except in desert areas. In California, most breeding occurs in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties. California's breeding population is resident year-long in most areas as the climate is relatively mild. Between mid-October and December, migratory bald eagles arrive in California from areas north and northeast of the state. The wintering populations remain in California through March or early April.

The bald eagle is a generalist and opportunistic predator and scavenger adapted to aquatic ecosystems. It frequents estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats. Its primary foods, in descending order of importance are: fish (taken both alive and as carrion), waterfowl, mammalian carrion, and small birds and mammals. Bald eagles are highly maneuverable in flight and frequently perch-hunt. They are also known to hunt by coursing low over the ground or water.

The bald eagle is unlikely to nest in the project area, but wintering bald eagles may be present in the project area. Two large reservoirs, Los Banos and San Luis are adjacent to the project area, and may provide foraging habitat for wintering bald eagles.

California Condor

California condors roost and nest in higher elevation areas on cliffs, and forage across hilly lower elevation areas. They are known to forage up to 100 miles from their roosts. Condors from San Luis Obispo and Santa Barbara Counties have been seen in Taft in Kern County, at the edge of the coastal mountains (Mitchell personal communication, 1999) and within the Carrizo Plain Natural Area. The birds which were reintroduced in Santa Barbara and San Luis Obispo Counties forage in the foothills and on the valley floor west of Interstate 5 in western Kern County and along the Tehachapi foothills in southern Kern County. Foraging habitat for the California condor has been lost to oil development, urban development, and row crops (Service 1998*b*).

Recent and planned future releases of captive-reared condors in Monterey and San Benito Counties have increased the possibility that these birds may encounter construction operations and maintenance activities or transmission lines of the proposed project. A new release of seven condors occurred in 2002 in western Monterey County. Condors have not been observed in the project area during any surveys. Should condors become established in coastal California (Monterey and San Benito Counties), it is likely they would fly over the entire San Joaquin Valley, including the project area. Although condors bred in the wild were not known to forage on the valley floor, the animals bred in captivity tend to be more opportunistic and may feed there (Robert Mesta personal communication, 1998).

Blunt-nosed Leopard Lizard

In the southern San Joaquin Valley, the blunt-nosed leopard lizard currently occupies scattered parcels of undeveloped land on the Valley floor, and occurs in the foothills of the Coast Range. While the blunt-nosed leopard lizard can occupy grassland used for grazing it prefers lands with scattered shrubs and sparse grass/forb cover. Habitat for the blunt-nosed leopard lizard has been lost or degraded due to oil development, urban development, row crops, pesticide application, and off-road vehicle use (Service 1998*a*).

Habitat disturbance, destruction, and fragmentation continue as the greatest threats to blunt-nosed leopard lizard populations. Disturbances and modifications of habitats within areas of mineral and petroleum development pose lesser, but continuing threats as they degrade the habitat. Direct mortality occurs when animals are killed in their burrows during construction, killed by vehicle traffic, drowned in oil, or fall into excavated areas from which they are unable to escape. Displaced lizards may be unable to survive in adjacent habitat if it is already occupied or unsuitable for colonization.

Livestock grazing can result in removal of herbaceous vegetation and shrub cover and destruction of rodent burrows used by lizards for shelter. Unlike cultivation of row crops, which precludes use by leopard lizards, light or moderate grazing may be beneficial. The use of pesticides may directly and indirectly affect blunt-nosed leopard lizards. The insecticide Malathion has been used since 1969 to control the beet leafhopper, and its use may reduce insect prey populations. Fumigants such as methyl bromide are used to control ground squirrels. Because leopard lizards often inhabit ground squirrel burrows, they may be inadvertently poisoned.

The BLM has conducted surveys and compiled observational data from BLM lands in western Kern, Kings, and Fresno Counties. Currently, the BLM and USGS-Biological Research Division are conducting a 5- to 10-year research study in the Lokern Area to evaluate the effects of cattle grazing on blunt-nosed leopard lizards, giant kangaroo rat, San Joaquin antelope squirrel, other small mammals, and Kern mallow.

Extant populations of blunt-nosed leopard lizards are known from the Ciervo, Tumey and Panoche Hills, and at various other locations in the vicinity of the project area (Service 1998*a*). There are numerous records from the vicinity in the NDDB and other sources. The natural lands of the linear, piedmont remnants of their habitat west of Interstate Highway 5 between Pleasant Valley and Panoche Creek in Fresno County are one of several areas given highest priority for habitat protection for the blunt-nosed leopard lizard (Service 1998*a*).

Suitable habitat for the blunt-nosed leopard lizard is available in annual grassland and saltbush scrub habitats in the project area and vicinity. Habitat of varying quality for the blunt-nosed leopard lizard is present throughout the project area (WAPA, 2003*a*). Two juveniles were observed during surveys conducted in 2001 (TOVA, 2001). Project related surveys and NDDB records indicate that blunt-nosed leopard lizards occur in the vicinity of the entire length of the project route (WAPA, 2003*a*). Approximately 15 miles of proposed access routes and 48

proposed structure locations occur in moderately suitable blunt-nosed leopard lizard habitat, primarily in the Monocline Ridge area (Jones & Stokes, 2003*a*).

The BLM has designated approximately 32,000 acres of habitat in the Ciervo-Panoche Natural Area in western Fresno County that is dedicated to the long-term conservation and recovery of San Joaquin Valley listed plants and animals, primarily the San Joaquin kit fox and the blunt-nosed leopard lizard. This dedicated area is located directly to the west of the proposed transmission line corridor.

Hoover's Eriastrum

Valley floor populations of Hoover's eriastrum have been destroyed primarily by farming operations and secondarily by urban development. In 1986, an estimated 92 percent of the known extant populations of Hoover's eriastrum were threatened by future conversions to agricultural use, groundwater recharge basins, and oil and gas development (Taylor and Davilla 1986). Hoover's eriastrum exists on some remnants of native habitat in western Fresno County. Although some sites contain substantial populations (5,000-40,000 individuals), most of the remaining sites on the valley floor are at risk because they are isolated from one another, range in size from approximately 1 acre to less than 400 acres, and contain fewer than 1,000 individuals (55 **FR** 29361). Conversion of land from native habitat or grazing to row crops continues to threaten Hoover's eriastrum populations in many areas (Service 1998*a*).

Hoover's eriastrum was not observed in the project area during any surveys (PG&E 2001*b* and WAPA 2003*a,d*), however, Hoover's eriastrum may not be evident except during unusually wet years, and it's presence cannot be ruled out due to low to average precipitation during the survey periods. Habitat for Hoover's eriastrum is found along the floodplains of the streams traversing the project area.

San Joaquin Woolly-threads

Valley floor populations of San Joaquin woolly-threads have been destroyed primarily by farming operations and secondarily by urban and oilfield development. The Lost Hills metapopulation is threatened by commercial and agricultural development (Taylor 1989, Taylor and Buck 1993). Hoover's eriastrum exists on some remnants of native habitat in the Kettleman Hills of western Fresno and Kings Counties, as well as isolated occurrences in the Panoche Hills in Fresno County. Occurrences of the plant in the Bakersfield metropolitan area are threatened by development. Conversion of land from native habitat to agricultural, commercial and oilfield development continues to threaten San Joaquin woolly threads populations throughout its range (Service 1998*a*).

San Joaquin woolly threads was not observed in the project area during the 2001 and 2002 surveys (PG&E 2001*b* and WAPA 2003*a,d*), however, San Joaquin woolly threads may not be evident during unusually wet years, and its presence cannot be ruled out due to low to average precipitation during the survey periods. San Joaquin woolly threads are known from ten occurrences in the vicinity of the project area. Seven of the occurrences are located between

Panoche Creek and Cantua Creek, and three of the occurrences are located at or east of Coalinga.

Effects of the Proposed Action

Effects of the Proposed Action on Listed and Proposed Animals

Potential impacts to listed animals of constructing and operating a transmission line and concomitant activities in western Fresno and Merced Counties include direct effects such as impacts to endangered species habitat, impacts to the Agua Fria Multi-Species Conservation Bank; direct mortality or injury; direct loss of shelter, dens, or burrows; temporary habitat losses for animal and plant species in the proposed project area; harassment; entrapment or entombment; displacement; accidental wildfires; and possible restrictions of animal movements through the area.

Direct mortality or injury could result from vehicle strikes, or from collapsed dens and burrows resulting in animals being crushed or entombed. Burrows and dens could be destroyed or damaged by vehicle traffic (particularly by traffic of heavy equipment), or by trenching, structure construction, or cable pulling, resulting in mortality, entrapment, or entombment. Any ditches dug and left open overnight could entrap wildlife. Any equipment with hiding places, such as pipes, can attract wildlife, and create hazards for them if left open or uncapped overnight.

Any burrows or dens located in the project area may be destroyed. Animals that occur in the project area could be displaced during grading, transmission line and pipeline construction, recontouring, and revegetation activities. Such displacement of animals into unfamiliar areas could increase the risk of predation and increase the difficulty of finding required resources such as food and shelter.

Listed animal species are likely to be subject to harassment while the construction projects are being conducted. Such harassment would result from ground vibrations, burrow and den destruction, and from the inherent increase in vehicular traffic and human presence. Human disturbance from construction could result in harassment and displacement of animals, whether or not the animals' dens and burrows are directly impacted. Harassment may alter the behavior of animals (e.g., activity periods, space use) resulting in increased predation risk, reduced access to resources, and reduced breeding success. Conducting construction activities during the winter breeding season for San Joaquin kit foxes or in the vicinity of natal dens during the spring months when they whelp could increase the potential for adverse impacts, if natal dens or occupied dens are in the vicinity of work sites. Conducting construction activities during the spring breeding season for other wildlife could increase the potential for adverse impacts.

Construction will be conducted during daylight hours as much as possible, which is intended to limit the potential for adverse effects, although blunt-nosed leopard lizards are diurnal. Ditches will be provided with escape ramps and checked before work recommences each day; pipes and other equipment with potential hiding places will be capped and/or checked before they are moved or used. If revegetation is implemented on certain sites, seeding shall be conducted by using a seed mix that closely matches the composition of species present on the site. Indiscriminate seeding

may result in habitat characteristics less favorable for listed species (U.S. Department of Energy 1998).

The potential for harassment will be minimized by measures described in the Biological Assessment and Mitigation Action Plan regarding employee training, pet prohibitions, trash restrictions, and the presence of a qualified biologist. However, harassment to individuals from construction noise and vibration is inherent in this activity and unavoidable.

Listed and proposed plant and animal species may be indirectly affected due to this project because of the increased availability of power. The location of the development that will occur is hard to determine because the power is being transferred on the grid, and it is unlikely that long term contracts will be used to transfer this power to specific utilities. Therefore these indirect effects have not been addressed for this project.

The proposed project will contribute to the local and range-wide trend of habitat loss, fragmentation, and degradation, which are the principal causes of the decline of the species addressed in this biological opinion.

Noise. A portion of the proposed transmission line corridor lies in areas that have been heavily developed for agriculture and oil production. The noise from the proposed construction is not expected to exceed the levels that normally occur during agricultural and oil production activities.

The remainder of the proposed transmission line largely crosses natural lands approximately 2,000 feet to the west of existing transmission lines. When an electric transmission line is energized, an electric field is generated in the air around the conductors. This electric field may cause corona. Corona is the breakdown of the air in the vicinity of the transmission line phase conductors. When the intensity of the electric field at the conductor surface exceeds the breakdown strength of the surrounding air, a corona discharge occurs at the conductor surface. This corona discharge produces energy, which can result in audible noise. Corona-generated audible noise can be characterized as a hissing crackling sound, which can generate complaints in human-populated areas under certain atmospheric conditions. Common and sensitive wildlife species in the area will be exposed to levels of noise significantly higher than those presently found in the area and may be significantly affected by this potential impact.

San Joaquin Kit Fox. The likelihood of direct mortality to San Joaquin kit foxes from either crushing or entombment in dens is low because of avoidance measures proposed in the Biological Assessment and Mitigation Action Plan. San Joaquin kit foxes may be adversely affected by vehicle strikes, and harassment from noise and vibration. San Joaquin kit foxes may be adversely affected by construction activities temporarily blocking travel corridors in grassland and agricultural areas, or by evening construction activities disturbing night time foraging.

San Joaquin kit foxes inhabiting the project area and surrounding vicinity (for purposes of this biological opinion the surrounding vicinity is described as 300 meters [approximately 1000 feet] outside and adjacent to the project footprint) are likely to be subject to indirect effects including temporary harassment from noise associated with project activities and human presence, and a

reduction in natural food sources as a result of habitat disturbance. Harassment can also result from heavy equipment vibration causing the collapse of dens and subsequent displacement of resident animals, which may become vulnerable to increased predation, exposure, or stress through disorientation and loss of shelter.

Project effects on San Joaquin kit foxes is expected to be greater during the den selection, pregnancy, and early pup dependency periods of the breeding cycle (December through July) than at other times of the year. San Joaquin kit foxes may exhibit increased sensitivity to disturbance during this period and therefore, ideally, surface-disturbing activities should occur between August and November. Where this is possible, it is anticipated that surface-disturbing activities and other actions likely to result in harassment will be minimized in the vicinity of San Joaquin kit fox natal dens. Habitat compensation measures are anticipated to minimize habitat effects due to project implementation.

All of the project site and associated transmission line corridor contain suitable habitat for San Joaquin kit foxes. Kit foxes or their sign were not observed in the proposed project area, however potential kit fox dens were located. Construction of the project and transmission lines will result in the permanent loss of 299.72 acres of potentially occupied habitat for the kit fox and the temporary disturbance of 442.43 acres of habitat.

Giant kangaroo rat. Construction of the transmission corridor will permanently impact approximately 289.89 acres and temporarily disturb 409.38 acres of potential giant kangaroo rat (and blunt-nosed leopard lizard) habitat. Giant kangaroo rats may be adversely affected by vehicle strikes, entombment in burrows, temporary loss or degradation of their habitat, and harassment from noise and vibration. Some giant kangaroo rats may escape direct injury if dens and burrows are destroyed, but become displaced into adjacent areas. They may be vulnerable to increased predation, exposure, or stress through disorientation, loss of foraging and food base, and loss of shelter. WAPA will provide a biological monitor who can remove individuals from harm's way or allow them to escape unimpeded, as described in the Biological Assessment and Mitigation Action Plan. Habitat compensation measures are anticipated to minimize habitat effects due to project implementation.

Noise is thought to have a significant effect on giant kangaroo rats for several reasons. Giant kangaroo rats are known to communicate among each other by foot drumming (Randall, 1997). Foot drumming may serve the function of allowing neighbors to recognize each other. There also exists some chance of take of individual kangaroo rats due to injury and mortality during construction and operation. Measures contained in the Biological Assessment and Mitigation Action Plan will minimize effects to giant kangaroo rats.

Bald Eagle. Potential adverse effects of construction and maintenance activities associated with the Path 15 Project include collision with transmission lines; harassment and/or accidental flushing of perched birds; and accidental poisoning by chemicals associated with the use of heavy equipment, such as antifreeze, oil, and grease. Line markers on the ground wire at the top of the transmission poles will reduce the likelihood of collisions by making the wires more visible to birds.

Although suitable wintering and foraging habitat for the bald eagle is near the project area (San Luis Reservoir), the potential for direct effects to occur is considered extremely low because the eagle is not likely to be present in the project area during construction, and WAPA's emergency contingency plans minimize the chance of chemicals being available for the birds to drink. With implementation of the conservation measures that are part of the proposed action, the potential for take of bald eagles will be minimized.

The chance of electrocution is very unlikely because of transmission line structure design; conductors and ground wires will be too far apart to allow electrocution (WAPA 2003*a*). Line marking devices will be placed on each ground wire every 50 feet, staggered so that they appear to be 25 feet apart when viewed from the side. Bald eagles could collide with the structures, conductors, or ground wires associated with this project.

California Condor. Potential adverse effects of construction and maintenance activities associated with the Path 15 Project include collision with transmission lines; permanent and temporary loss of potential foraging habitat (by displacement from construction activities); harassment and/or accidental flushing of perched or feeding birds; and accidental poisoning by chemicals associated with the use of heavy equipment, such as antifreeze, oil, and grease. Line markers on the ground wire at the top of the transmission poles will reduce the likelihood of collisions by making the wires more visible to birds. Since reintroduction, there have been nine condors confirmed to have died from colliding with power lines and/or poles, and one additional mortality that is suspected to have been caused by a powerline collision (B. Palmer, personal communication). Power line aversion training has been conducted, and may improve the captive-raised condors' ability to avoid this risk. Although the project is considered to have suitable foraging habitat for the condor, the potential of other effects occurring is considered extremely low because the condor is not likely to be present in the project area during construction, and WAPA's emergency contingency plans minimize the chance of chemicals being available for the birds to drink. With implementation of the conservation measures that are part of the proposed action, the potential for take of condors will be minimized.

Construction of the Path 15 Project will permanently impact approximately 299.72 acres and temporarily disturb 442.43 acres of potential condor foraging habitat. Some potential for take of individuals exists by electrocution and transmission line collision. The chance of electrocution is very unlikely because of transmission line structure design; conductors and ground wires will be too far apart to allow electrocution (WAPA 2003*a*). The probability of collision should be reduced because of the transmission tower aversion training the captive-bred birds receive prior to being released. Line marking devices will be placed on each ground wire every 50 feet, staggered so that they appear to be 25 feet apart when viewed from the side. Condors could collide with the structures, conductors, or ground wires associated with this project.

Blunt-nosed Leopard Lizard. Construction of the transmission line will permanently impact approximately 289.89 acres and temporarily disturb 409.38 acres of potential blunt-nosed leopard lizard (and giant kangaroo rat) habitat. Blunt-nosed leopard lizards are likely to be adversely affected by vehicle strikes, entombment in burrows, temporary loss or degradation of their habitat, and harassment from noise and vibration. Some blunt-nosed leopard lizards may escape direct injury if burrows are destroyed, but become displaced into adjacent areas. They may be vulnerable to increased predation, exposure, or stress through disorientation, loss of foraging and food base, and loss of shelter.

Blunt-nosed leopard lizards will be subject to a greater risk of vehicle strikes during their above-ground active period (April 15 to September 30) and at greater risk of entombment in burrows when they are inactive and hibernating underground (October 1 to April 14). Hatchlings can be active until mid-October or November, depending on weather. Therefore, hatchlings may be subjected to a lower risk of entombment if construction occurs during above-ground lizard activity periods. In general, soil disturbance activities are to be conducted during the blunt-nosed leopard lizard activity period when air temperatures are between 74 and 104 degrees Fahrenheit (23.5 to 40 degrees Celsius). During such times, blunt-nosed leopard lizards are often active on the ground surface and can flee the path of vehicles, or can be observed and avoided by vehicle operators. Eggs are likely to be crushed during this period.

Information about the susceptibility of other lizards to noise suggests that there could be a potential for impacts to blunt-nosed leopard lizards from construction noise, even when they are in burrows. However, there is no documentation of specific impacts to individual blunt-nosed leopard lizards from noise or to impacts to blunt-nosed leopard lizard populations that can be attributed to noise. These potential effects would most likely be restricted to areas where noise levels are at or above 95 dBA.

Leopard lizards have high site fidelity. All leopard lizards released away from their home ranges are subject to predation, competition, and thermal stress. Those released into the temporary shelters may not recognize their territories and be subject to the same effects. The prey source will be seriously diminished from project activities and leopard lizards are likely to have very low reproduction fitness in the years following project implementation.

WAPA's avoidance and minimization measures described in the Biological Assessment and Mitigation Action Plan will help to ameliorate the above effects. Any revisions to the Mitigation Action Plan will be approved by the Service. Many of the impacts to animal species will be tempered given the timing of construction; the temporary nature of the transmission and pipeline construction; and the avoidance and minimization measures incorporated in the project description to protect individuals. Additionally, the acquisition of pre-approved compensation areas will assist in recovery goals outlined in the Service's Valley Recovery Plan (Service 1998*a*).